



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,088	07/29/2003	Gordon W. Braudaway	YOR920030314US1	5968
<div>Louis P. Herzberg Intellectual Property Law Dept. IBM Corporation P.O. Box 218 Yorktown Heights, NY 10598</div>				
			<div>EXAMINER WASHINGTON, JAMARES</div>	
			<div>ART UNIT 2625</div>	<div>PAPER NUMBER</div>
			<div>MAIL DATE 02/22/2008</div>	<div>DELIVERY MODE PAPER</div>

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/629,088

Applicant(s)

BRAUDAWAY ET AL.

Examiner

Jamares Washington

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12, 14 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's amendments and response received on November 28, 2007 have been entered. Claims 1-18 are currently pending with claims 13, 15, 17 and 18 having been canceled. Amendments and remarks are addressed hereinbelow.

### ***Drawings***

In light of the amendment to Figure 5, examiner withdraws previous objection to the drawings for failure to show every feature of the invention specified in the claims.

### ***Claim Rejections - 35 USC § 112***

In light of the arguments presented by applicant regarding claims 14 and 16, examiner withdraws previous rejection under 35 U.S.C. § 112.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, 5, 7-9 and 11, 12, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglas U. Mennie et al (US 6721442 B1) in view of Eric R. Lee et al (US 6786954 B1) and Christian Voellmer et al (US 6439395 B1).

Regarding claim 1, Mennie et al discloses a method of deterring document counterfeiting comprising:

providing at least one authentic hard-copy document (Fig. 21 "Learn Mode" step 2114), color scanning a plurality of candidate documents to form scanned documents (column 2 lines 66 through column 3 line 3) each having a two-dimensional array of image pixels for each candidate document (Fig. 22 numerals 2214 and 2216, "X" and "Y" dimensions);

searching each array for said at least one mark ("...scanning full color characteristics of a document, processing data corresponding to the characteristics scanned..." at column 3 lines 16-19; Indicating a color characteristic determines the evaluation of subsequent documents); and

Mennie et al fails to teach each of said authentic hard-copy document including at least one mark having at least one color that is out of gamut of a printing device having at least three ink colors.

Lee et al, in the same field of endeavor of document security using color to determine authenticity ("The present invention also relates to an ink which can be used for labeling an object (for example, a document or other object) with identifying markings which can be rapidly verified as authentic and which are highly resistant to counterfeiting" at column 1 lines 15-19;

Lee), teaches at least one out-of-gamut color mark and a hard-copy document including at least one mark having at least one color that is out of gamut of a printing device having at least three ink colors (Column 17 lines 62-67 and column 18 lines 1-4; Lee. Indicating the mark/ink is out-of-gamut of publicly available hardware).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of discriminating authentic documents from counterfeit documents as disclosed by Mennie et al to utilize the teachings of Lee et al where an authentic hard-copy includes at least one mark having at least one color that is out of the gamut of a printing device having at least three ink colors because "high security is desired for creating authentication marks that will not require that the marks be reproducible by publicly available hardware" (column 17 lines 62-64; Lee).

Mennie et al fails to disclose or suggest sorting said plurality of candidate documents into a first group of scanned documents not having said at least one out-of-gamut color mark, and into a second group of scanned documents having said at least one out-of-gamut color mark, so that said scanned documents in said first group being characterized as counterfeit, and said scanned documents in said second group being characterized as authentic.

Voellmer et al, in the same field of endeavor of discriminating counterfeit documents from authentic documents ("To permit bank notes which the test device detects as being suspected forgeries or unidentifiable to be sorted out separately as early as possible" at column 2 line 10), teaches sorting a plurality of documents into a first group of scanned documents not having said at least one out-of-gamut color mark (Documents not having said at least one out-of-gamut color mark (as rejected above Mennie in view of Lee) are documents found to be

counterfeit or forged therefore "Reject pocket 10 disposed in the immediate vicinity of the input pocket is intended for unidentifiable or suspected counterfeit notes which must be subjected to a check by the operator" at column 3 lines 17-20) and into a second group of scanned documents having said at least one out-of-gamut color mark (Documents containing said at least one out-of-gamut color mark are documents found to be authentic therefore Fig. 1 numeral 12 (or 13-15 according to currency type) "output pocket") so that said scanned documents in said first group being characterized as counterfeit, and said scanned documents in said second group being characterized as authentic.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method as disclosed by Mennie et al in view of Lee et al wherein counterfeit documents are discriminated from authentic documents by using an out-of-gamut color mark to involve the process of sorting the documents according to authenticity as taught by Voellmer et al to avoid confusion between the two if the authentic document is to be further examined or determined authentic from the first determination.

Regarding claim 2, Mennie et al discloses the method as recited [in] claim 1, wherein each of said pixels has at least three color pixel values (column 2 lines 4-11).

Regarding claim 4, Mennie et al discloses the method as recited [in] claim 1, wherein the step of providing includes printing using a custom-color ink (see rejection of claim 1).

Regarding claim 5, Mennie et al discloses the method as recited claim 1, wherein the step of providing authentic hard-copy documents includes providing a plurality of bank checks (Column 5 lines 51-59).

Regarding claim 7, Mennie et al discloses the method as recited [in] claim 1, further comprising employing an authentication test taken from a group of authentication tests consisting of:

- gamut color size correspondence;

- gamut color location correspondence; magnetic number correspondence ("The scanhead(s) 70 may perform magnetic, optical and other types of sensing to generate signals that correspond to characteristic information received from a bill 44) at column 5 lines 62-65, Mennie and column 29 lines 33-47, Mennie);

- checking account pattern-of-use exception;

- unexpected presence of ultraviolet fluorescing (column 28 lines 23-32, Mennie);

- unexpected presence of thermochromic responding;

- unexpected presence of laser resonating inks;

- unexpected absence of ultraviolet fluorescing;

- unexpected absence of thermochromic responding;

- unexpected absence of laser resonating inks; and

any combination of these authentication tests. (If one of the claim limitations is met, then the claim limitation as a whole is met).

Regarding claim 8, Meenie in view of Lee and Voellmer discloses an apparatus performing the method as rejected in claim 1 comprising:

means for providing at least one authentic hard-copy document ("...ultra-high resolution print heads and printers could be custom made..." at column 18 lines 3 and 4, Lee), each said authentic hard-copy document including at least one mark having at least one color that is out-of-gamut of a printing device having at least three ink colors (see rejection of claim 1);

means for color scanning a plurality of candidate documents in forming a two-dimensional array of image pixels for each candidate document ("... currency handling system 10" at column 30 line 21);

means for searching each array for said at least one out-of-gamut color mark (Fig. 1 numeral 70); and

means for sorting (see rejection of claim 1) said plurality of candidate documents into a first group of scanned documents not having said at least one out-of-gamut color mark, and into a second group of scanned documents having said at least one out-of-gamut color mark, so that said scanned documents in said first group being characterized as counterfeit, said scanned documents in said second group being characterized as authentic (see rejection of claim 1)

Regarding claim 9, discloses the apparatus as recited [in] claim 8, wherein the means for providing authentic hard-copy documents includes means for providing a plurality of bank checks (see rejection of claim 5).



Regarding claim 11, Mennie discloses a method comprising imparting a plurality of marks onto a hard copy using at least one custom colored ink, and subsequent evaluation of a scanned and digitized image of said hard copy for the purpose of counterfeit detection (see rejection of claim 1 above), including the steps of:

providing a hard copy (see rejection of claim 1); imparting onto Said hard copy at least one visible mark using at least one chosen colored ink, each said marks covering an area of coverage on said hard copy and each area of coverage having defined position within said hard copy (see rejection of claim 1);

scanning said hard copy to form a digitized image having at least three image planes (Col. 19 lines 63-67 and Col. 20 lines 1-5), each said image plane being represented by an array having pixel brightness data for a plurality of pixels, each of said pixels having at least three color components and having a pixel position (see rejection of claim 2);

examining the pixels of said digitized image corresponding to the at least one said area of coverage (see rejection of claim 1); and

determining the presence or absence of the expected color in said at least one area of coverage based on the values of the color components of pixels corresponding to and lying within said area of coverage (see rejection of claim 1).

Regarding claim 12, Mennie discloses a method as recited in claim 11, wherein said scanned and digitized image is transaction document (see rejection of claim 5).

Regarding claim 14, Mennie discloses a program storage device readable by machine (Fig. 1 numeral 56 memory), tangibly embodying a program of instructions executable by the machine to perform method steps for authentication testing (see rejection of claim 13), said method steps comprising the steps of claim 1 (see rejection of claim 1).

Regarding claim 16, Mennie discloses a program storage device readable by machine (Fig. 1 numeral 56 memory), tangibly embodying a program of instructions executable by the machine to perform method steps for authentication testing ("...uses full color scanning to discriminate and/or authenticate a variety of different currencies" at column 2 line 35) said method steps comprising the steps of claim 11.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mennie et al in view of Lee et al and Voellmer et al as applied to claim 1 above, and further in view of John S. Ligas et al (US 5289547).

Regarding claim 3, Mennie et al discloses the method as recited [in] claim 1.

Mennie et al fails to teach or suggest wherein the step of color scanning includes employing a colorimeter.

Ligas et al, in the same field of endeavor of document authentication ("The authenticating method of the present invention may be used to authenticate security documents and other articles of commerce" at column 2 lines 58-60), teaches employing a colorimeter ("The means

for verification may be by a visual observation or by the use of an instrument such as a colorimeter" at column 10 line 39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of document authentication as disclosed by Mennie to employ a colorimeter as taught by Ligas because a colorimeter is a well-known instrument in the art of image processing for comparing or matching colors.

4. Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglas U. Mennie et al (US 6721442 B1) in view of Eric R. Lee et al (US 6786954 B1) and Christian Voellmer et al (US 6439395 B1) as applied to claim 1 above, and further in view of Osama M. Alattar (US 2002/0126873 A1).

Regarding claim 6, Mennie discloses the method as recited [in] claim 1, further comprising:

noting correct pixel locations of said at least one color in said authentic document (Fig. 21, numeral 2106. Determining the bill's orientation gives the location information of the indicia or "color" patch to be sensed as explained in column 43 lines 54-60);

determining particular pixel locations (Fig. 23a numeral 2305) of said at least one color (see rejection of claim 1 above. The object for determining authenticity is determined to be a color outside the gamut of a conventional printer); and

forming a third group of scanned documents not having said particular pixel locations corresponding to said correct pixel locations, and into a fourth group of scanned documents

having said particular pixel locations corresponding to said correct pixel locations, so that said scanned documents in said third group being probably counterfeit, and said scanned documents in said fourth group being possibly authentic (see rejection of claim 1 pertaining to document sorting according to authenticity).

Mennie fails to disclose determining particular pixel locations in each of said second group of scanned documents.

Alattar, in the same field of endeavor, teaches determining an additional characteristic from the group of possibly authentic documents ("A detector 34... detects the component colors" at paragraph [34]. "A signature is determined for a subject spot color based on the color components" at paragraph [35]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to conduct a second detection operation after detecting a first characteristic of authenticity as taught by Alattar where the component colors are first detected and a signature is determined according to the component colors with the method disclosed by Mennie et al in which documents are discriminated according to authenticity because the additional detection would provide heightened security for the detection of authentic documents.

Regarding claim 10, Meenie in view of Lee and Voellmer discloses the apparatus as recited [in] claim 8, further comprising:

means for noting correct pixel locations of said at least one color in said authentic document ("From the above selections, the system 10 determines what master information to learn from the bill(s) to be processed in the learn mode" at column 38 lines 37-39);

means for determining particular pixel locations of said color in each of said second group of scanned documents (The system 10 next determines in step 2305 the lateral position of the bill in relation to the bill transport path by using the "X" sensors" at column 42 lines 40-43); and

means for forming a third group of scanned documents not having said particular pixel locations corresponding to said correct pixel locations, and into a fourth group of scanned documents having said particular pixel locations corresponding to said correct pixel locations, so that said scanned documents in said third group being probably counterfeit, said scanned documents in said fourth group being possibly authentic (Detector as described in claim 6 above).

*Response to Arguments*

Applicant's remarks: While the Examiner cites to "learn mode" in Mennie Fig. 1 step 2114 as if it were a unique feature, this assertion is incorrect because those familiar with the art of image recognition know a device must be "taught" or shown an image in order to recognize subsequent presentations of that image. This is also true of devices without a "learn mode" because in those devices the pattern to be recognized is embedded within the device itself. The present invention teaches the use of pattern recognition with regard to the placement of out-of-gamut colors. Therefore, the present invention is patentably distinct from Mennie in this regard.

Examiner's response: Applicant's argument is largely irrelevant to the use of the cited portion of the reference (Mennie). Examiner points to the "learn mode" of Mennie to teach the claimed "providing at least one authentic hard-copy document". Examiner agrees with applicant in that this is very well known in the art but this argument has no bearing on the disclosed subject matter cited by applicant ("The present invention teaches the use of pattern recognition with regard to the placement of out-of-gamut colors") as stated previously. Thus, the argument proves nothing pertaining to the patentability over Mennie et al.

Applicant's remarks: "Examiner asserts that Lee creates out-of-gamut colors. This is incorrect. The use of a combination of inks as taught in Lee does not translate to out-of-gamut colors. By definition, Lee's printed colors are within the gamut of colors capable of being printed by the printer used to apply the inks. Lee teaches the use of a standard printer and does not require

special inks (Col. 7, lines 51-59). The resulting printed colors are within the gamut of the inkjet printer since no special ink is required to implement the teachings of Lee. This method cannot be said to produce out-of-gamut colors because a printer created the color using standard ink and can thus be reproduced by a casual counterfeiter using readily available equipment.”

Examiner’s response: The cited portion of Lee (Col. 17 lines 62-65) does in fact teach creating out-of-gamut colors as it states “If high security is desired for creating authentication marks that will not require that the marks be reproducible by publicly available hardware, custom mixed inks can be used”. If marks can not be reproducible by publicly available hardware, then those marks are “out of the publicly available hardware’s gamut”. (Emphasis added). Lee may teach the use of a standard printer at Col. 7 lines 51-59 as cited by applicant, however examiner directs applicants attention to the portion of the reference originally cited which teaches using a combinatorial set of inks which are not publicly available and thus are out-of-gamut of publicly available printers. Making the argument that “...by definition, Lee’s printed colors are within the gamut of colors capable of being printed by the printer used to apply the inks”, this would hold true for applicant’s invention also and would thus warrant a 35 U.S.C. 112 first paragraph enablement rejection as it would not enable one skilled in the art to reproduce the colors in any way since they would not be reproducible by any printing means. In other words, the inks would have to be in the gamut of at least one printing device able to print the colors.

Applicant’s remarks: Voellmer only mentions a test device but does not specify the nature of the test device nor make any claims pertaining to it. That is, Voellmer does not teach a means of

testing for counterfeit documents. Further, Voellmer does not teach a means of document recognition based upon the input of an authentic document.

Examiner's response: Voellmer teaches (at Col. 3 lines 12-17) "Subsequently the notes are transported through test device 6 for checking selectable criteria of the note. In accordance with this test the notes are subsequently supplied either via so-called spiral pocket stacker 9 to reject pocket 10 or via longitudinal/cross conveying device 7 to output pockets 12 to 15". Also (Col. 2 line 10) "To permit bank notes which the test device detects as being suspected forgeries..." which indicates a means for testing counterfeit documents. In order for the apparatus to judge whether the bank note is a forged or an authentic document, it would have to compare to an authentic document which, as stated by applicant previously pertaining to the "learn mode", is well known in the art.

Although Voellmer is used to merely teach sorting documents deemed to be "counterfeit" (forgeries) or "authentic", the above arguments have been addressed to show Voellmer indeed teaches the "nature" of the test device as well as document recognition based upon the input of an authentic document.

Applicant's remarks: Examiner rejects claim 3 under Ligas in light of Mennie as being obvious. This argument is similar to that of Lee in light of Mennie. Ligas teaches the use of photochromic compounds that undergo reversible color change (Ligas at Col. 3 Lines 22-23). A reversible color change as taught by ~ does not teach the use out-of-gamut colors. Therefore, Ligas in light



of Mennie cannot be said to sort documents based on the whether an out-of-gamut color is present.

Examiner's response: Ligas is used to merely teach employing a colorimeter as stated in the rejection of claim 3 above. All other claimed limitations have been addressed through the rejections and arguments presented above.

Applicant's remarks: Alattar does not apply to the present invention because Alattar explicitly rejects out-of-gamut colors. Particularly, Alattar is directed to steganography (§ 0002), which "is the art and science of writing hidden messages in such a way that no one apart from the sender and intended recipient even realizes there is a hidden message." It is impossible to combine the present invention with Alattar in any meaningful way because Alattar rejects the use of out-of-gamut colors. Thus, the present invention is patentably distinct from Alattar as combined with any existing art.

Examiner's remarks: Alattar is used to merely teach the use of employing an additional detection for the group of documents characterized as authentic (as stated in the rejection of claim 6 above). As stated, the component color is first detected and a signature is determined for a subject spot color based on the color components. It would be obvious to one of ordinary skill in the art to provide an additional detection means when documents are deemed authentic to further heighten security. Alattar, in the portion of the reference cited by applicant, may be drawn towards stenography; however that has no bearing on the fact that two forms of detection

are used in determining authenticity. All other claimed limitations have been addressed in the rejections and responses presented above.

### *Conclusion*

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jamares Washington whose telephone number is (571) 270-1585. The examiner can normally be reached on Monday thru Friday: 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on (571) 272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:  
10/629,088  
Art Unit: 2625

Page 18

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
JW

February 15, 2008

Jamare Washington  
Junior Examiner  
Art Unit 2625

  
KING Y. POON  
SUPERVISORY PATENT EXAMINER